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A CONTRIBUTION TO THE KNOWLEDGE OF THE DERMAPTERA OF PANAMA¹

BY MORGAN HEBARD

In recent years extensive collecting in Panama has been undertaken and the exceptionally fine series of Dermaptera thereby assembled is here considered. Nearly the entire collections were made by E. A. Schwarz and A. Busck for the National Museum; a few specimens taken by J. Zetek, for that institution, and by D. E. Harrower and the author, for the Hebard Collection, are also included. A general study of the American Dermaptera available has been undertaken, the results of which work are in the course of publication.² Considerable revision has been found necessary and in the present paper many, now obvious, mistakes are rectified in the Spongiphorinae, Labiinae and Sparattinae.

In the present paper twenty-two genera and twenty-nine species are recorded, of which five genera and six species are described as new. The only species previously recorded from Panama, but not represented in the present series, is *Echinopsalis thoracica* (Serville). A series of one hundred and eighty-five specimens has been considered.

Our thanks are due to Mr. A. N. Caudell for the privilege of studying the material belonging to the National Museum and the retention in the Hebard Collection of duplicate material.

It is important to note that "length of body" in the present paper signifies the distance from the buccal region of the head to the apex of the penultimate ventral abdominal segment, the head in normal position being carried horizontally.

¹ The second and succeeding papers of this series will deal with the Orthoptera of Panama.

² The first paper has already appeared, "Notes on the Earwigs (Dermaptera) of North America, north of the Mexican Boundary," Ent. News, xxviii, pp. 311-323, (1917). The others will treat of the Dermaptera of Mexico; General Notes; of the Dermaptera of the West Indies excluding Porto Rico, and of the Dermaptera of Porto Rico.

A portion of the material here considered, with a few other specimens belonging to the National Museum, has recently been recorded by Burr (Can. Ent. xlv, pp. 273 to 276, (1914)). We are at a loss to account for the determinations as given by that author, unless the names were hastily jotted down and the material returned without careful study. We have considered the series with the greatest care and have studied all of the literature bearing on the species here recorded, as well as their allies. The results are convincing that Burr has made the following misidentifications:

Material here recorded	According to Burr
<i>Euborellia antoni</i>	<i>Eulabis saramaccensis</i>
<i>Vostox brunneipennis</i>	<i>Vostox insignis</i> (part)
<i>Prosparatta humilis</i>	<i>Vostox insignis</i> (part)
<i>Prosparatta incerta</i>	<i>Purex parvicollis</i>
<i>Microvostox bilineatus</i> (part)	<i>Spongovostox ghilianii</i> ?
<i>Labia micans</i>	<i>Labia equatoria</i>
<i>Labia arcuata</i>	<i>Prolabia annulata</i> (part)
<i>Labia dorsalis</i>	<i>Prolabia annulata</i> (part)
<i>Barygerax esau</i>	<i>Prolabia formica</i> (part)
<i>Eugerax poecilum</i>	<i>Prolabia formica</i> (part)

We have not seen the specimens recorded as *Vostox similis*, *Sparatta nigrina* and *Ancistrogaster variegata*. The determinations are questionable.

DERMAPTERA

PYGIDICRANIDAE

DIPLATYINAE

Diplatys gracilis (Stål)

1855. *Cylindrogaster* [gracilis] Stål, Ofv. Kong. Vet.-Akad. Förh., xii, p. 350.
[Rio [de] Janeiro, [Brazil].]

Porto Bello, Panama, II, 20, 1911, (Schwarz), 1 ♀.

Diplatys jansoni (Kirby)

1891. *Cylindrogaster jansoni* Kirby, Jour. Linn. Soc. London, Zool., xxiii, p. 507. [Chontales, Nicaragua.]

Paraiso, Canal Zone, Panama, II, 9 to V, 10, 1911, (Schwarz), 1 ♂, 3 ♀, 1 juv.

PYGIDICRANINAE

***Pyragra fuscata* Serville**

1831. *Pyragra fuscata* Serville, Ann. Sci. Nat., xxii, p. 34. [French Guiana.]

Trinidad River, Panama, III, 23, 1912, V, 5, 1911, (Busck),
1 ♀, 2 juv.

Cabima, Pan., V, 21 to 28, 1911, (Busck), 6 ♀, 5 juv.

Chilibre River, Pan., IV, 14, 1911, (Busck), 6 juv.

Alhajuelo, Pan., IV, 7 and 17, 1911, (Busck), 11 juv.

The adults in this series all have the proximo-lateral portion of the tegmina, to near the costal margin, and the exposed portion of the wings, uniform warm buff. Such paler coloration is only shown as a narrow sutural border of the exposed portion of the wings in adults before us from Costa Rica. Similar presence or absence of pale tegminal markings is found in *Vostox brunnei-pennis*. Over certain regions but one color condition would appear to occur, though in restricted areas a multiplicity of color differences are sometimes found, thus indicating the valueless character of such differences even for racial distinction.

***Echinopsalis guttata* Bormans**

1893. *Echinopsalis guttata* Bormans, Biol. Cent.-Amer., Orth., i, p. 3, pl. I, fig. 4. [Chontales, Nicaragua.]

Paraiso, Canal Zone, Panama, (P. B. Preston), 1 ♀, [U.S.N.M.];
I, 17, 1911, (Schwarz), 1 juv.

Porto Bello, Pan., II, 25, 1911, (Schwarz), 1 juv.

In the immature specimens the metazona of the pronotum, caudal margin of the metanotum and the proximal abdominal segments are pale.

LABIDURIDAE

PSALINAE

***Psalis americana* (Beauvois)**

1817. *Forficula americana* Beauvois, Ins. rec. Afr. Amér., p. 165, Orth. pl. xiv, fig. 1. [San Domingo.]

Gatun, Canal Zone, Panama, VII, 19 to VIII, 5, 1916, (Harrower), 2 ♀, 5 juv. ♀.

Alhajuelo, Pan., IV, 4 and 17, 1911, (Busck), 1 ♂, 1 juv.

Porto Bello, Pan., II, 17 to III, 2, 1911, 1912, (Busck), 2 ♂,
6 ♀, 26 juv.

Trinidad River, Pan., V, 1 to VI, 1911, 1912, (Busck), 1 ♂, 3 ♀.

Cabima, Pan., V, 18 to 26, 1911, (Busck), 3 adults, 2 juv.

Chilibre River, Pan., IV, 14, 1911, (Busck), 1 juv.

Measurements (in millimeters) of extremes

Porto Bello, Panama	Length of body	Length of pronotum	Width of pronotum	Length of tegmen	Length of forceps
♂ (2)	16.5-32.8	2.6-3.4	2.4-3.3	5.1-7.6	4.7-6.6
♀ (6)	26.8-35.7	3.2-4.2	3.1-3.7	7.8-7.9	5.9-7

The adults, which have wings present, have the tegmina showing a broad mesal band of xanthine orange (greatest width 4.1 mm.). This band is, however, not as wide as in a similar pair before us from San Carlos, Costa Rica, in the Academy Collection.

The immature examples in the Hebard Collection are small (length 9.4 to 14.3 mm.) and very different from adults in general appearance. In the smallest, the twelfth or thirteenth antennal joint is very pale, in the larger specimens, slightly paler than the other joints, while the femora and sometimes the tibiae are suffused with blackish brown. As a result, confusion of these instars with *Euborellia annulipes* would be easy, were the heavier structure, proportionately larger head, longer distal antennal joints, lateral folds of proximal dorsal abdominal segments³ and the second tarsal joints, which are distinctly shorter than in individuals of *Euborellia* of like size, not noted.

***Euborellia antoni* (Dohrn)**

1864. *F[orcinella] antoni* Dohrn, Stett. Ent. Zeit., xxv, p. 289. [Venezuela.]

Frijoles, Canal Zone, Panama, (Schwarz), 1 ♂.

Paraiso, C. Z., Pan., I, 10, 1911, (Schwarz), 1 juv. ♀; V, 3, 1911, (Schwarz), 1 ♂, 1 ♀.

Corozal, C. Z., Pan., XI, 17, 1911, (Hebard), 1 ♀.

Females will be compared with that sex of *E. annulipes* in a forthcoming paper. The males of *antoni* are separable from males of *annulipes* by the decidedly larger size; head with margins of cheeks almost straight, parallel, to the broadly rounded latero-caudal angles; more sharply acute and more strongly keeled latero-caudal angles of the distal dorsal abdominal segments,

³ Rehn has carefully described two of the later instars of the present species. Proc. Acad. Nat. Sci. Phila., 1903, pp. 301 to 303, (1903).

and femora with dark suffusions occupying nearly their entire cephalic and caudal faces.

Immature examples of this species might easily be mistaken for adult, or nearly adult, examples of *annulipes*.

LABIDURINAE

Labidura riparia (Pallas)

1773. *Forficula riparia* Pallas, Reise, Russ. Reichs., pt. ii, p. 727. [Shores of Irtysh River, western Siberia.]

Panama City, Canal Zone, Panama, XII, 1913, (J. Zetek),
2 ♀, [U. S. N. M.].

BRACHYLABINAE

Leptisolabis howardi Burr

1910. [*Leptisolabis*] *howardi* Burr, Proc. U. S. Nat. Mus., xxxviii, p. 449. [Cacao, Trece Aguas, Guatemala.]

Boquete, Panama, III, 1914, (J. Zetek), 1 ♀.

This specimen agrees fully with the type in ambisexual features. Length of body, 8.5; of forceps, 1.75 mm.

LABIIDAE

SPONGIPHORINAE

Many difficulties have been encountered in the present group, and, in order to correct these as far as the material here treated is concerned, we feel obliged to present the following key. The Sparattinae are here briefly diagnosed, as one of the genera there included until now, is found to be really a member of the Spongiphorinae, showing nearest relationship to *Spongovostox* s.s.

A.⁴ Attenuation at pronotum and base of abdomen not striking. Entire dorsal surface not subdeplanate. Coloration not brilliant or strongly contrasting.

B. Eyes large, their length considerably greater than that of the cheeks. (Form weakly depressed. First tarsal joint longer than third. Pronotum subquadrate.)

C. Size large. Tarsal joints heavy, with ventral surfaces heavily supplied with long hairs; first joint longer than combined length of second and third, second joint nearly as long as third.

Spongiphora Serville

Genotype.—*croceipennis* Serville

⁴ We are fortunate in having material of the genotypic species before us, of all of the genera here diagnosed, excepting *Purex*.

CC. Size medium. Tarsal joints slender, with ventral surfaces moderately supplied with shorter hairs; first joint about as long as combined length of second and third, second joint very much shorter than third.

Vostox Burr

Genotype.—*brunneipennis* (Serville)

BB. Eyes, small, their length distinctly less or nearly equalling that of the cheeks, never, however, less than half that of the cheeks.

C. Form weakly depressed. First tarsal joint longer than third. Pronotum subquadrate.

D. Tarsal joints heavy, with ventral surfaces heavily supplied with longer hairs.

Purex Burr

Genotype.—*frontalis* (Dohrn)

DD. Tarsal joints slender, with ventral surfaces moderately supplied with shorter hairs.

E. Size medium. Cephalic sutures distinct. Occiput flattened. General facies very similar to the type of *Spongiphora*.

Spongovostox Burr

Genotype.—*quadrimaculata* (Stål)

EE. Size small to minute. Cephalic sutures subobsolete. Occiput weakly convex.⁵ (Fourth antennal joint very slightly more than half as long as third.)

Microvostox new genus

Genotype.—*alter* (Burr)

CC. Form rather strongly depressed. First tarsal joint slightly shorter than, or equal in length to, third. Pronotum distinctly longer than wide. (Size medium. General facies very similar to the type of *Spongiphora*.)

Prosparratta Burr

Genotype.—*incerta* (Borelli)

AA. Attenuation at pronotum and base of abdomen striking. Entire dorsal surface subdeplanate. Coloration brilliant and strongly contrasting. (Eyes very small, their length considerably less than one-half that of the cheeks.)

Sparattinae

Spongiphora croceipennis Serville

1831. *Spongiphora croceipennis* Serville, Ann. Sci. Nat., xxii, p. 31. [Brazil.]

Cabima, Panama, V, 24 and 29, 1911, (Busck), 1 ♂, 1 ♀.

La Chorrera, Pan., V, 17, 1912, (A. Busck), 1 ♂.

⁵ Though the general facies of the species assigned to this genus show unmistakably a Spongiphorine ancestry, the less deplanate head with sutures subobsolete has caused much confusion with the genus *Labia*. From the forms properly referable to that genus, those of the present can, indeed, only be separated by the different general facies and shorter fourth antennal joint. In *Microvostox* this joint is only slightly more than half as long as the third; in *Labia* it is as long as, or very little shorter than, the third.

These specimens are small for the species, the length, including the forceps, of the males is 19 and 22.2 mm. The male specimen from La Chorrera lacks the disto-internal tooth of the forceps.

Vostox brunneipennis (Serville)

1839. *Psolidophora brunneipennis* Serville, Hist. Nat. Ins., Orth., p. 30. [Philadelphia, Pennsylvania.]

1855. *P[solidophora] insignis* Stål, Ofv. Kong. Vet.-Akad. Förh., xii, p. 349. [Antioquia, Colombia.]

1904. *Spongiphora geayi* Burr, Trans. Ent. Soc. London, 1904, p. 295. [Dar-
ien [Panama].]

1906. *Labia insularis* Bruner, Jour. N. Y. Ent. Soc., xiv, p. 137. [Trinidad.]

Paraiso, Canal Zone, Panama, III, 20, 1911, (Schwarz), 1 ♀.

Tabernilla, C. Z., Pan., V, 14, 1907, (Busck), 1 ♂.

After careful study of the literature and comparison of the type of *insularis*, and the individuals here recorded, with a large series of *brunneipennis* from the United States, we are convinced that *insignis* of Stål and *insularis* of Bruner are absolute synonyms of that species. Under *insignis* Burr has already placed his *geayi*, the original description of which exactly fits the male here recorded, except that the present specimen is smaller, with slightly more elongate forceps.

The individuals here recorded are smaller than any before us from the United States, but in that large series, far greater extremes in size are found than between the smallest specimens and those here considered. It is of importance to note that in the males of this insect, the degree of acuteness of the four pygidial projections, and the degree of production of the meso-distal portion of this appendage, frequently shows considerable variation. The pygidium of the male here recorded agrees fully with that of some of the males from the United States; in that series, however, the meso-distal portion is normally distinctly more produced.

The pale proximo-lateral marking of the tegmina is clearly of no specific or racial value. This marking is moderately distinct in the male here recorded, very weakly defined in the female type of Bruner's synonymous *insularis*, from Trinidad, but absent in the female from Panama. The tegmina of a Costa Rican specimen before us and of those from the United States are immaculate.⁶

⁶ See discussion of such markings under *Pyragra fuscata* on page 303.

The present male has the forceps with sinistral arm more slender and shorter than the dextral, the dextral alone supplied at end of proximal third with a small inner tooth. The present specimens show the following measurements: length of body, ♂, 9.2, ♀, 7.7; of forceps, ♂, 3.4, ♀, 2.7 mm.

***Prosparatta humilis* new species** (Text fig. 1; plate XXVI, figs. 1 and 2.)

This species shows a very strong general superficial resemblance to small examples of *Vostox brunneipennis*. Compared with the genotype, *P. incerta* (Borelli), the present species is found to be less slender, with less elongate pronotum, more acute male pygidium, male forceps with internal tooth more proximal and female forceps with distal flange of ventro-internal margin weaker and not abruptly terminated.

Type.—♂; Cabima, Panama. May 25, 1911. (A. Busck.) [U. S. National Museum.]

Size medium large for genus, form moderately depressed. Head with occi-

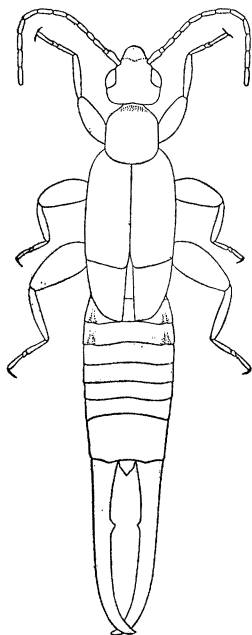


Fig. 1. *Prosparatta humilis* new species. Dorsal view of type. ♂. (× 5.7)

put impressed, cheeks longer than eyes. Antennae with first segment large, broadening in mesal third so that the distal portion is the more ample; second minute; third as long as first, but much more slender; fourth decidedly shorter, twice as long as its mesal width; succeeding segments increasing regularly in length distad. Pronotum longer than broad, smooth, with a medio-longitudinal linear sulcus very feebly indicated; rectangular cephalad, broadly convex truncate caudad, lateral margins straight, showing an almost imperceptible divergence caudad; prozona tumid, this becoming very weak caudad in the middle of each side; metazona deplanate. Tegmina smooth, with distal margin truncate; wings with exposed area nearly half as long as tegmen. Abdomen with fourth and fifth dorsal segments showing laterad a weak, rounded carina; abdominal surface polished, but with surface microscopically very closely ruguloso-punctulate, excepting ultimate dorsal segment which is smooth, with length equal to half its width, showing a weak triangular depression meso-distad and with transverse distal margin thickened, feebly concave mesad and laterad. Pygidium small, about as wide as long, surface proximad very narrowly deplanate, the caudal margin of this area broadly convex, remaining surface transversely strongly

convex; lateral margins in proximal two-thirds weakly convergent, in distal third strongly convergent and very feebly concave to the immediate apex, which is very narrowly truncate. Forceps elongate, parallel to their apices which are incurved, bearing at distal extremity of proximal two-fifths a delicate internal tooth, the shaft, from that point distad, more decidedly flattened horizontally than proximad. Penultimate ventral abdominal segment ample, exposed portion about twice as broad as long, with latero-caudal angles broadly rounded and distal margin transverse, fringed with closely set microscopic hairs; preceding segment about two-thirds as wide.

Allotype.—♀; same data as type. [U. S. National Museum.]

Agrees with type except in the following features. Size very slightly smaller. Distal portion of abdomen narrower. Pygidium small, simple, triangular with apex rounded. Forceps more nearly approximated, shorter, without tooth as in male, but armed at base with a projection which is broader than long, the distal margin of which is feebly angulato-concave. Shaft of forceps very feebly curved, not straight as in *incerta*, its ventro-internal margin roughly and weakly irregular, distad with a flange even more weakly indicated than in *incerta* and, unlike that species, disappearing evenly into the margin of the distal curvature. Disto-ventral abdominal segment with distal margin evenly convex.

Measurements (in millimeters)

♂	Length of body	Length of pronotum	Length of tegmen	Length of forceps
Cabima, <i>type</i>	9.6	1.6	2.8	4.2
Cabima, <i>paratype</i>	10	1.7	2.8	4
Lion Hill, <i>paratype</i>	9.6	1.7	2.9	4.5
♀				
Cabima, <i>allotype</i>	9.2	1.7	2.6	2.8
Cabima, <i>paratype</i>	10	1.7	2.7	2.9
Cabima, <i>paratype</i>	9.5	1.7	2.6	3
Paraiso, <i>paratype</i>	9.3	1.6	2.6	2.8

Coloration.—Entire insect glabrous. Head, pronotum and tegmina uniform, dark chestnut brown. Antennae with proximal joint buckthorn brown, other portions darker, prout's brown. Exposed portion of wings antimony yellow, suffused, particularly along the sutural margins, with dark chestnut brown. Abdomen dark chestnut brown, shading to rich chestnut in distal portion. Forceps rich chestnut. Femora buckthorn brown, suffused with prout's brown along the dorsal margins. Tibiae and tarsi prout's brown.

The series before us shows little structural, size or color variation. As in all the allied species, decided variation is to be expected, when larger series are at hand.

Specimens Examined: 10; 3 males, 4 females and 3 immature examples.

Cabima, Panama, V, 22 to 28, 1911, (Busck), 2 ♂, 3 ♀, *type, allotype, paratypes*, 3 juv.

Lion Hill, Canal Zone, Pan., VI, 18, 1907, (Busck), 1 ♂, *paratype*.

Paraiso, C. Z., Pan., II, 8, 1911, (Busck), 1 ♀, *paratype*.

***Prosparatta incerta* (Borelli)**

1905. *Sparatta incerta* Borelli, Boll. Mus. Zool. Anat. comp. Torino, xx, no. 516, p. 11, figs. [Puerto Bertoni, Paraguay.]

Porto Bello, Panama, II, 25, 1911, (Schwarz), 1 ♀.

The series recently recorded by Rehn from the Madeira River⁷ is before us. In addition, we have two males from La Guayra, Venezuela, taken July 2 to August 10, 1910, by W. Robinson. These latter show great size variation; length, including forceps, 11.5 and 15.5 mm.; and are much paler than the others, head, pronotum and tegmina auburn, dorsal surface of abdomen sanford's brown.

The specimen from Panama shows no difference of diagnostic value from this series. Its size is remarkably small; length, including forceps, 8 mm.; while the head and prozona are very pale hazel. It is evident from this material that the present is a very plastic species.

All of the females before us have the forceps showing the characteristic proximal truncate projection, with shaft straight to the incurved apex, its ventro-internal margin roughly and weakly irregular, sub serrate, distad showing a feeble flange which terminates suddenly but roundly at the base of the distal curvature.

MICROVOSTOX new genus

Difficulty has been experienced in separating from *Labia* the smaller of the species of the Spongiphorinae, which have been referred to *Spongiphora* and more recently to *Spongovostox*. The present genus is difficult to define properly, but we agree with Borelli⁸ and Burr⁹ in deciding that certain species must be removed from *Labia*, though we feel that they show sufficiently great differences from *Spongovostox* to prevent their being assigned to that genus.

⁷ Trans. Am. Ent. Soc., xlii, p. 221, (1916).

⁸ Boll. Mus. Zool. Anat. comp. Univ. Torino, xx, no. 516, p. 8, (1905).

⁹ Ann. k.-k. Naturhist. Hofmus. Wien, xxvi, p. 334, (1912).

The species of the present genus differ from those of *Labia* in having a distinctly Spongiphorine facies and in having the fourth antennal joint decidedly shorter than the third.¹⁰

Genotype.—*Microvostox alter* [*Spongovostox alter*] (Burr).¹¹

In linear arrangement, *Microvostox* is found to follow *Spongovostox*, preceding *Prosparratta*, which is the last of the known genera of the Spongiphorinae.

Generic Description. Size small to minute; form weakly depressed, hardly more so than in many species of *Labia*. Head with sutures subobsolete, occiput weakly convex. Eyes small, their length appreciably less than that of the cheeks. Antennae with first joint moderately stout, nearly as long as combined length of second and third joints; second minute; third elongate and slender; fourth only slightly more than half as long as third, but (two times) longer than broad; succeeding joints more elongate in increasing ratio distad, cylindrical. Pronotum subquadrate; prozona weakly convex, metazona deplanate, except narrowly mesad, where a slight convexity is indicated. Abdomen with fourth and fifth dorsal segments showing on each side a weak, rounded, lateral carina. Penultimate ventral abdominal segment of male subrectangulate; preceding segment much wider than other more proximal segments. Tarsi with ventral surfaces supplied with short hairs. First tarsal joint as long as combined length of second and third joints; second joint very small.

In addition to the species recorded below, a male specimen of *P[salidophora] pygmaea* Dohrn, from Madeira-Marmoré R. R. Company Camp 41, Rio Madeira, Brazil, shows the species to be a member of the present genus.

It is highly probable that all of the small tropical American Spongiphorines discussed by Burr,¹² as well as *Labia mexicana* Bormans, *Labia tricolor* Kirby and *Labia schwarzi* Caudell, are members of the present genus.

¹⁰ In *minor* (Linnaeus), genotype of *Labia*, the fourth antennal joint is as long as the third, in other species of the genus somewhat shorter, but never decidedly shorter.

¹¹ Ann. k.-k. Naturhist. Hofmus. Wien, xxvi, p. 336, (1912).

¹² Ann. k.-k. Naturhist. Hofmus. Wien, xxvi, p. 337, (1912).

Microvostox alter (Burr)

1912. *Spongovostox alter* Burr, Ann. k.-k. Naturhist. Hofmus. Wien, xxvi, p. 336. [Maripi, Bolivia (type); Minas Geraes, [Brazil]; Bugaba, Panama.]

Paraíso, Canal Zone, Panama, II, 9 and IV, 25, 1911, (Schwarz),
1 ♂, 1 ♀.

Alhajuelo, Pan., IV, 6, 1911, (Busck), 1 ♂.

This beautiful but minute insect is the smallest of the species of the Spongiphorinae.

Microvostox bilineatus (Scudder) (Plate XXVI, Fig. 5.)

1869. *Labia bilineata* Scudder, Proc. Bost. Soc. Nat. Hist., xii, p. 345. [Between Quito and Napo [Ecuador].]

Paraíso, Canal Zone, Panama, II, 1 to III, 5, 1911, (Schwarz;
Busck), 2 ♀, 1 juv.

Bohio, C. Z., Pan., II, 7, 1911, (Schwarz), 1 juv.

Tabernilla, C. Z., Pan., (Busck), 1 ♀.

Ancon, C. Z., Pan., I, 12, 1911, (Busck), 1 ♂.

These specimens agree fully in all diagnostic features with the female type of this species, now before us. The females from Paraíso have the pronotum unicolorous; the other adults agree with the type in having the lateral portions of the metazona slightly paler.

LABIINAE

We find, with regret, that the removal of a number of species from the genus *Labia* to the genus *Microvostox*, a member of the Spongiphorinae, by no means clears up the difficulties encountered, in the material before us, representing other species of the present subfamily.

Were sufficient material at hand, careful revision of the American forms would clear away the present confusion. As no one is at present able to undertake this task, we have felt it our duty, after careful consideration of the literature, to diagnose and assign to their proper station only those species represented in the material before us. It is with much regret that we are obliged to state that, though Burr has correctly separated *Prolabia* from *Labia*, his efforts in the General Insectorum to assign many American species to one of these two genera, have resulted in a very unsatisfactory state of affairs. In the Annulata and Dorsalis Groups of the genus *Labia*, we take exception to other con-

clusions which Burr has reached, discussing these in the present paper under that heading.

The Championi Group of the Genus *Labia*

The species of the present group are slender and very small, the males having the forceps unarmed, weakly angulate-arcuate, and the area embraced by them consequently elongate and roughly ovate. From the original descriptions we are able to associate *championi* Bormans, *tristani* Borelli and *equatoria* Burr, all closely related species. A fourth species is here described.

Labia micans new species (Text fig. 2; plate XXVI, figs. 3 and 4.)

The present species shows nearest relationship to *L. tristani*, differing in the smaller size, slightly different male forceps and male pygidium, which in that species differs in being “. . . quadrangolare, all'incirca largo quanto lungo, appiattito. . . .”

In *L. championi* decided differences are found in the unicolorous pronotum and very strongly transverse male pygidium.

The character of the antennal annulation is probably the same in all of these species, the distal joints being pale, their number varying individually. The presence or absence of wings which show beyond the tegmina, is evidently also a feature of individual difference¹³ and not diagnostic, as was also supposed by Borelli.¹⁴

Type.—♂; Porto Bello, Panama. February 24, 1911. (A. Busck.) [U. S. National Museum.]

Size very small, form slender. Head smooth, shining, convex, with sutures indistinct. Eyes small, distinctly shorter than cheeks. Antennae (with twelve and thirteen joints); first segment large, as long as second and third together, expanding slightly near base, thence with sides parallel; second minute; third elongate; fourth three-quarters as long as third; fifth nearly as long as third; succeeding joints increasing slightly in length distad, ovate, the longest slightly more than twice as long as broad. Pronotum smooth, with a single bristle at each cephalic angle; length subequal to greatest (caudal) width; lateral margins feebly cingulate, nearly straight, very feebly diverging to the sharply rounded, nearly rectangular caudal angles, caudal margin very feebly convex; median portion of surface weakly convex, triangular, with apex truncate at caudal margin of pronotum, remaining narrow lateral portions deplanate.

¹³ See Burr, in considering *Prolabia unidentata*, Proc. U. S. Nat. Mus., xxxviii, p. 451, (1911). We fully agree with these observations, which are borne out by a single female, with wings well produced beyond the tegmina, in the present series of *micans*.

¹⁴ Boll. Mus. Zool. Anat. comp. Univ. Torino, xxi, no. 531, p. 9, (1906).

Tegmina nearly twice as long as pronotum, smooth, shining, hairless, truncate distad in full expanse of dorsal field. Wings concealed. Abdomen with dorsal surface polished, without hairs; sides in greater part parallel, carinae absent; disto-lateral portions of dorsal segments not produced, except of eighth segment which is broadly rounded; penultimate dorsal segment fully three times as wide as long, with distal margin smooth. Pygidium twice as long as mesal width, surface deplanate, nearly perpendicular in proximal third, there sharply

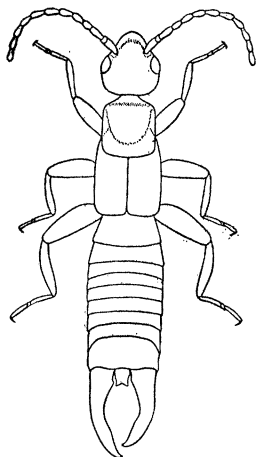


Fig. 2. *Labia micans* new species. Dorsal view of type. ♀. (× 11.5)

curved, deplanate and horizontal in distal two-thirds; lateral margins straight and feebly converging to distal fifth, becoming weakly cingulate distad, straight, parallel, thickened and supplied with long, silky hairs in distal fifth; narrow distal margin roughly rectangulate-emarginate, with sides straight, disto-lateral angles sharply rounded. Forceps moderately hairy, with shaft showing external margin weakly convex, stout proximad with few, irregular denticulations opposite pygidium and dorsal surface briefly deplanate beyond the slight basal enlargement, thence tapering evenly to mesal point where it is cylindrical, thence flattening with a feeble flange developing internally and again gradually disappearing before the acute, weakly incurved apex. Penultimate ventral abdominal segment with distal margin notched mesad, so that the distal portion of the pygidium is visible from below. Limbs short, femora stout; first tarsal joint with ventral surface well supplied with hairs, in length equal to that of the minute second and elongate third joints combined.

Allotype.—♀; same data as type. [U. S. National Museum.]

Agrees with male except in the following features. Form more robust, the abdomen distinctly broader. Disto-dorsal abdominal segment more ample, surface triangularly weakly deplanate meso-distad, with caudal margin showing a series of well spaced, minute knobs, except on the brief lateral portions. Pygidium vertical, with surface deplanate, fitting tightly between the bases of the arms of the forceps. Forceps with numerous hairs dorso-proximad, very few minute, scattered hairs on other dorsal portions; shaft heavy, triquetrous, straight and evenly tapering to distal portion, where it is flattened, cylindrical, incurved to the sharp, sudden apex; ventro-internal margin, just beyond the base, produced in a moderate, percurrent flange, with its margin coarsely subserrate, in consequence the arms have their inner margins attingent throughout, except for a minute, triangular, proximal open space. Disto-ventral abdominal segment with distal margin obtuse-angulate but broadly rounded.

*Measurements (in millimeters)*¹⁵

	Length of body	Length of pronotum	Width of pronotum	Length of tegmen	Length of forceps
♂					
Porto Bello, <i>type</i>	4	.65	.68	1.02	1.09
♀					
Porto Bello, <i>allotype</i>	4.3	.78	.85	1.02	.88
Porto Bello, <i>paratype</i>	4.5	.68	.75	1.29 ¹⁶	.95
Cabima, <i>paratype</i>	5	.82	.83	1.16	1.09

Coloration.—Head shining blackish brown. Antennae with proximal (eight or nine) joints pale mummy brown, distal (three or four) joints whitish. Pronotum shining, with slightly more than cephalic half ochraceous-orange, varying in series to ochraceous-tawny, remaining caudal portion black, varying in series to blackish chestnut. Tegmina shining, black, varying in series to blackish chestnut.¹⁷ Abdomen with dorsal surface shining, blackish brown proximad shading to chestnut distad, in three specimens the chestnut extends over two-thirds of this surface. Forceps shining chestnut. Limbs immaculate ochraceous-buff.¹⁸ Ventral surface of abdomen shining, varying from chestnut to russet.

Specimens Examined: 5; 1 male and 4 females.

Porto Bello, Panama, II, 20 to 25, 1911, (A. Busck), 1 ♂, 3 ♀, *type, allotype, paratypes*, (1 ♀ with fully developed wings).

Cabima, Pan., V, 24, 1911, (Busck), 1 ♀, *paratype*.

The Species at Hand of the Curvicauda, Annulata and Dorsalis Groups of the Genus Labia

Key to males

(Abdomen with numerous microscopic hairs and fewer longer hairs. Forceps strongly bowed; with hairs dorsad, particularly proximo-laterad.)

A. Forceps greatly widened proximad. Abdomen with dorsal segments neither produced or keeled laterad. (Pygidium declivent, disto-ventral margin straight, transverse. Tegmina and wings fully developed, thickly supplied with microscopic hairs. Forceps with lamellate internal margin of enlarged portion acute-angulate produced just beyond pygidium.)

Labia curvicauda (Motschulsky)

AA. Forceps not greatly widened proximad. Abdomen with some dorsal segments either produced or keeled laterad.

B. Abdomen with eighth and ninth dorsal segments produced and keeled laterad. Tegmina and wings (fully developed), thickly supplied with microscopic hairs.

¹⁵ It has been found necessary to take the measurements of all the very small earwigs under a microscope.

¹⁶ Wings fully developed, length of exposed portion .75 mm.

¹⁷ Wings, in female with these organs fully developed, blackish chestnut, each with a large spot of ochraceous buff.

¹⁸ In some specimens darker, due to discoloration in drying.

C. Forceps simple, without a tooth. Pygidium declivent; surface convex; much broader than long; distal margin concave, with disto-lateral angles bluntly rounded. Lateral productions and keels of eighth and ninth dorsal abdominal segments very weak.

Labia annulata (Fabricius)

CC. Forceps excavate in median internal portion, with a ventro-internal tooth. Pygidium declivent; surface subdeplanate; broader than long; disto-lateral angles sharply acute-angulate produced with intervening portion of distal margin transverse. Lateral productions and keels of eighth and ninth dorsal abdominal segments weak.

Labia arcuata Scudder

BB. Abdomen with fifth to ninth dorsal segments produced or keeled laterad. Tegmina and wings smooth, with very few microscopic hairs.

C. Tegmina and wings reduced. Abdomen with fifth to ninth dorsal segments moderately produced but not keeled laterad. Forceps simple, without a tooth. Pygidium declivent; surface subdeplanate; lateral margins rather decidedly concave convergent to the moderately broad and bluntly rounded disto-lateral portions, between which the distal margin is deeply and narrowly arcuato-concave.¹⁹

Labia rotundata Scudder

CC. Tegmina and wings fully developed. Abdomen with fifth to ninth dorsal segments strongly produced and keeled laterad, fourth segment moderately produced. Forceps simple, with a minute ventro-internal tooth at end of proximal third. Pygidium declivent; surface subdeplanate; lateral margins feebly convex convergent to minute disto-lateral knob-like projections, between which the rather narrow distal margin is transverse, feebly concave.

Labia dorsalis (Burmeister)

Key to females

(Abdomen with numerous microscopic hairs and fewer longer hairs.)

A. Forceps simple, heavy, subtriquetrous, ventro-internal margins attingent. (Pygidium inset between bases of forceps. Tegmina and wings fully developed.)

B. Size minute. Tegmina and wings thickly supplied with microscopic hairs. Forceps with lamellate ventro-internal margin with smooth edge. Pygidium shield-shaped, with lateral margins convex convergent.

Labia curvicauda (Motschulsky)

BB. Size very small. Tegmina and wings smooth, with very few microscopic hairs. Forceps with lamellate ventro-internal margin with edge showing some blunt serrations. Pygidium bluntly triangular, with lateral margins straight convergent.

Labia dorsalis (Burmeister)

AA. Forceps simple, slender, cylindrical, well separated. (Size very small.)

B. Tegmina and wings fully developed, thickly supplied with microscopic hairs.

¹⁹ This is determined from a single male before us, with no definite data but apparently from Mexico, in the National Museum Collection.

C. Pygidium convex; about as long as broad; lateral margins with minute nodes, strongly convergent to acute-angulate produced and slightly divergent latero-caudal projections, which occupy the entire narrow distal margin.

Labia annulata (Fabricius)

CC. Pygidium convex; distinctly shorter than broad; lateral margins smooth, subparallel, very feebly convergent to minute, acute latero-caudal projections, between which the broad distal margin is transverse.

Labia arcuata Scudder

BB. Tegmina and wings reduced, smooth, with very few microscopic hairs. (Pygidium elongate, truncate-conical, considerably longer than wide; lateral margins smooth, moderately convergent to minute, acute, latero-caudal projections, between which the very narrow distal margin is transverse.)²⁰

Labia rotundata Scudder

The Curvicauda Group

The single species of this group found in America is readily distinguished by the characters given in the preceding keys.²¹

Labia curvicauda (Motschulsky)

1863. *Forficelisa curvicauda* Motschulsky, Bull. Soc. Nat. Moscou, xxxvi, pt. ii, p. 2, pl. II, fig. 1. [Nura-Ellia Mountains, Ceylon.]

This cosmopolitan species, representing an Old World group, shows numerous distinctive differences from the members of the Annulata and Dorsalis Groups, to the species of which, however, it bears a general superficial similarity.

Paraiso, Canal Zone, Panama, I, 1 to IV, 25, 1911, (Schwarz),
1 ♂, 3 ♀.

Corozal, C. Z. Pan., XI, 17, 1913, (Hebard), 1 ♂.

The Annulata Group

The present group includes the species *annulata*, *arcuata*, *conspicua*²² and *rotundata*. From the literature, it does not ap-

²⁰ This is determined from the type, from Mexico, in the Museum of Comparative Zoology Collection, and two females from the National Museum, one from Orizaba, Vera Cruz, Mexico, the other without definite data but apparently from Mexico.

²¹ Burr's failure to recognize or assign correctly the majority of the smaller forms of the American Labiinae is well demonstrated by his disposition of material of the present insect. He determined correctly material of both sexes from Long Key, Florida, in 1910, but that same year recorded from Cayamas, Cuba, a male as *Labia trinitatis* and females as *Labia unidentata*.

²² A single specimen from Costa Rica before us, represents either this insect or a very closely related species. We have in hand series of the other species, including the unique types of *arcuata* (male) and *rotundata* (female).

pear probable that other species, referable to this group, have been described. Burr has placed under *annulata* all of the material which he had of both the Annulata and Dorsalis Groups,²³ not only locating *dorsalis*, *chalybea*, *arcuata* and *rotundata* in the synonymy under that name, but also *flaviscuta*. Such action can only be attributed to jumping at conclusions in a difficult group, with insufficient material at hand.

The weakly produced lateral angles of the male dorsal abdominal segments and simple, slender, well separated female forceps, readily separate individuals of the present group from those of the Dorsalis Group.

Labia annulata (Fabricius)

1793. [*Forficula*] *annulata* Fabricius, Ent. Syst., ii, p. 4. [Islands of meridional America.]

1838. *F[orficula] dorsalis* Burmeister, Handb. Ent., ii, abth. ii, pt. i, p. 754. [Colombia.]

Porto Bello, Panama, II, 25, to III, 6, 1911, (Busck; Schwarz), 1 ♂, 2 ♀.

Bohio, Canal Zone, Pan., II, 7, 1911, (Schwarz), 1 ♀.

Paraiso, C. Z., Pan., I, 14 to 25, 1911, (Schwarz), 1 ♂, 2 ♀.

The present insect agrees with the brief Fabrician description, from which Burmeister's description of *dorsalis* shows no diagnostic differences.

To the present minute species, nearest relationship is shown by *L. arcuata*, small and brilliantly colored examples of the latter species bearing to material of *annulata* a close superficial resemblance.

The following features of importance are noted in the series before us. Antennae with first segment equal to combined length of second, third and fourth; second quadrate; third only slightly longer than wide; fourth quadrate but larger than second; longest joint about three times as long as wide; joints dark to eleventh or twelfth, remaining joints pale. Pronotum, tegmina and wings shining black, metallic, showing a weakly bluish luster in some lights; pronotum sometimes paler, brownish, particularly laterad. Limbs with suffused annuli. Caudal metatarsus distinctly longer than combined length of second and

²³ Proc. U. S. Nat. Mus., xxxviii, p. 453, (1910).

third tarsal joints.²⁴ Female with dorsal abdominal segments neither produced or keeled laterad.²⁵

Measurements (in millimeters)

	Length of body	Length of pronotum	Width of pronotum	Length of tegmen	Length of forceps
♂					
Porto Bello	3.7	.61	.61	1.02	.8
Paraíso	3.8	.62	.61	1.16	.77
♀					
Porto Bello	4.2	.69	.68	1.29	.88
Paraíso	4	.65	.64	1.16	.84

***Labia arcuata* Scudder**

1876. *Labia arcuata* Scudder, Proc. Bost. Soc. Nat. Hist., xviii, p. 257. [Vassouras, 100 miles north of Rio [de Janeiro], Brazil.]

Tabernilla, Canal Zone, Panama, V, 1 to 14, 1907, (Busck),
1 ♂, 2 ♀.

Paraíso, C. Z., Pan., I, 28 to II, 2, 1911, (Schwarz; Busck), 3 ♂,
2 juv.

Old Panama, Pan., I, 31, 1911, (Busck), 2 ♂, 1 ♀.

In general coloration this species ranges from a solid blackish type, to a brown and black condition, similar to the normal coloration of *L. annulata*. The type of this species, a male, now before us, represents the former condition.

The following features of importance are noted in the series before us. Antennae with first segment equal to combined length of second and third; second quadrate; third elongate; fourth three-quarters as long as third; fifth nearly as long as third; succeeding joints elongate-ovate, the longest over four times as long as broad; proximal joints dark, one or two distal joints pale. Pronotum, tegmina and wings colored as in *annulata*, the metallic luster sometimes very weak. Limbs with annuli subobsolete.

Measurements (in millimeters)

	Length of body	Length of pronotum	Width of pronotum	Length of tegmen	Length of forceps
♂					
Tabernilla	4.9	.82	.8	1.7	1.09
Paraíso	3.8	.68	.68	1.45	.95
Paraíso	3.9	.69	.72	1.29	.95
Old Panama	4.8	.74	.74	1.63	1.09
Old Panama	5	.86	.84	1.9	1.22
Vassouras, Brazil, type	6	.88	.84	1.97	1.43

²⁴ This is true of all of the species before us of the Curvicauda, Annulata and Dorsalis Groups.

²⁵ Likewise true of the three allied groups here considered.

Though the present series shows decided size and color variation, very little individual variation is found in hairy covering, lateral production of male dorsal abdominal segments or in the pygidium and forceps.

The Dorsalis Group

The present group includes the species *dorsalis* and *cyanescens*.²⁶ Under the Annulata Group comparisons are made and the species discussed.

Labia dorsalis (Burmeister)

1838. *F[orficula] dorsalis* Burmeister, *Handb. Ent.*, ii, abth. ii, pt. i, p. 754. [Colombia.]

1864. *L[abia] chalybea* Dohrn,²⁷ *Stett. Ent. Zeit.*, xxv, p. 429. [Venezuela.]

1906. *Labia trinitatis* Bruner, *Journ. N. Y. Ent. Soc.*, xiv, p. 136. [Trinidad.]

Cabima, Panama, V, 22, 1911, (Busck), 1 ♀.

Porto Bello, Pan., 1 ♂, 2 ♀.

As indicated in the last footnote, the name *chalybea* appears to be, at least in part, founded on material of the species previously described as *dorsalis*. Professor Bruner has very kindly sent us for examination the types of *trinitatis*, which agree in every structural feature with the Panamanian series assigned with little doubt to *dorsalis*.

The Panamanian male has the dorsal abdominal surface blackish with distal segment and forceps pale yellowish, the tegmina and wings strongly metallic; that from Trinidad has the dorsal surface of the abdomen and the forceps dark reddish brown as in the females before us, the tegmina and wings less strikingly metallic. The Mexican males are even more obscurely colored. Little definite can be said of this interesting species until much larger series are collected. It is clear that very great color variation occurs.

Measurements (in millimeters)

♂	Length of body	Length of pronotum	Width of pronotum	Length of tegmen	Length of forceps
Motzorongo, Mexico	6.1	.88	.88	1.84	1.16
Motzorongo, Mexico	5.1	.88	.88	1.7	1.09

²⁶ As far as we are able to determine from the description of that species.

²⁷ The description does not fully agree and may have been compiled from examples of several species; the female with forceps "zusammenliegend" is almost assuredly the present species. Burr's discussion of the portion of the type series belonging to the Vienna Museum offers little assistance.

♂	Length of body	Length of pronotum	Width of pronotum	Length of tegmen	Length of forceps
Porto Bello, Panama	5.6	.92	.88	1.84	1.22
Trinidad. <i>Type of trinitatis</i>	5.5	.86	.86	1.9	1.22
♀					
Porto Bello, Panama	4.53	.82	.8	1.55	1.02
Porto Bello, Panama	4.35	.82	.8	1.84	1.16
Trinidad. <i>Type of trinitatis</i>	4.9	.82	.81	1.7	1.09

The following minute species are extremely hard to place, owing to the presence of various important features which do not agree with those of any one of the groups of the Dermaptera.

The structure of the head in all is as found in the Labiinae. The pronotum is suggestive of the Labiinae in *Geracodes* and *Barygerax*, of the Diplatyinae in *Gerax* and *Eugerax*. The tegminal and wing development is distinctive and different in all, and these organs are thickly covered with short hairs, except in *Gerax*. The abdomen in all is thickly clothed with hairs. The forceps are simple, cylindrical and straight, to the incurved apex in the males.²⁸ The tarsal claws, in all except *Geracodes*, are furnished with arolia, a feature not found in the Labiinae, but occurring in the Diplatyinae. The development of the male metaperameres is remarkable in *Gerax*; the spines, projecting beneath the forceps in *Eugerax*, unparalleled in the Dermaptera. The femora are unkeeled as in the Labiinae.

These species will probably require the erection of one or more new subfamilies, when sufficient material has been obtained to examine fully the genitalia in both sexes, and the relative values of the most striking differences are better understood. At present we are inclined to place them after the Labiinae.

The characters of greatest importance are given in the following key:

A. Tarsal claws without arolia. First antennal joint over twice as long as any of the distal joints. Wings extending beyond tegmina more than tegminal length. (Eye much shorter than cheek. Antennae with sixteen to seventeen joints; first antennal joint heavy and very elongate, widened proximad; succeeding joints all short, moniliform. Pronotum not strikingly narrower than head, lateral margins rather strongly diverging caudad, metazona deplanate. Tegmen elongate, about twice as long as pronotum. Head.

²⁸ The male sex of *Geracodes* is unknown.

pronotum, tegmina, wings, abdomen and forceps thickly supplied with short hairs, abdomen with few longer hairs. Male sex unknown.)

Geracodes litus new species

AA. Tarsal claws with arolia. First antennal joint distinctly less than twice as long as any of the distal joints. Wings extending beyond tegmina much less than tegminal length. (Male forceps simple.)

B. Antennae with third joint pyriform; succeeding joints short, flattened rectangular-oval, moniliform. Pronotum not strikingly narrower than head, metazona deplanate. Male without armed metaperameres or projecting ventro-distal lateral spines. (Eye about as long as cheek. Antennae with fourteen to sixteen joints; first antennal joint heavy and rather elongate, widened mesad. Tegmen very elongate, nearly three times as long as pronotum. Head, tegmina, wings, abdomen and forceps very thickly supplied with short hairs; pronotum fringed laterad with some stouter hairs, which are elongate cephalad; abdomen and forceps with numerous longer hairs.

Barygerax esau new species

BB. Antennae with third joint subcylindrical; succeeding joints more elongate, not moniliform. Pronotum strikingly narrower than head, metazona decidedly ascending to lateral margins. Male with armed metaperameres or projecting ventro-distal lateral spines. (Antennae with eleven to thirteen joints²⁹; fourth joint slightly shorter than third; succeeding joints increasing, then decreasing, in length. Wings moderately projecting beyond tegmina.)

C. Eye very large, over twice as long as the short cheek. Tegmen very elongate, nearly three times as long as pronotum. Head supplied with minute, microscopic hairs; pronotum smooth, with a single bristle at each cephalic angle; tegmina and wings smooth; abdomen and forceps thickly supplied with short hairs and with numerous longer hairs. Male without lateral aciculate projections beneath base of forceps. Metaperameres of male with two decurved, chitinous fangs. **Gerax phantasma** new species
CC. Eye small, distinctly shorter than cheek. Tegmen moderately elongate, slightly over twice as long as pronotum. Head, pronotum, tegmina, wings, abdomen and forceps thickly supplied with minute hairs, abdomen and forceps with numerous longer hairs. Male with an elongate, chitinous, aciculate process projecting caudad at the base of each arm of the forceps. Metaperameres of male without chitinous processes.

Eugerax poecilum new species

GERACODES³⁰ new genus

Very distinctive in characters of the antennae and wings. Of a general Labiine facies and showing nearest agreement with *Labia minor*, differing from that species in: the much more elon-

²⁹ The antennae are incomplete, apparently clipped, in the type of *Gerax phantasma* and in the majority of the specimens of *Eugerax poecilum*. The general similarity leads us to believe that the number of joints will be found about the same in these species.

³⁰ From γέρax and -οδες = resembling *Gerax*.

gate first antennal joint and much shorter succeeding joints; the narrower head, with more sharply truncate occiput; the more elongate pronotum, which is narrower cephalad, with lateral margins more divergent caudad; the much more elongate wings, and the much less flattened, more nearly conical forceps of the female.³¹

The genus is monotypic. *Genotype*.—*Geracodes litus* new species.

Features of generic value are given in the key. These we consider to be: the ocular and antennal characters; the general pronotal character; the greatly elongate wings and absence of arolia. In addition, we would remark that the caudal metatarsus is very slightly longer than the combined length of the second and third tarsal joints and has the ventral surface hairy, with two rows of widely spaced, elongate, chaetiform spines.

This genus would appear to be truly Labiine, but is apparently related to *Barygerax*, which, in turn, shares various characters with *Gerax* and *Eugerax*, which latter genera show a strongly Diplatyine development.

Geracodes litus new species (Plate XXVI, Figs. 6 and 7.)

This is a distinctive insect structurally; in general appearance resembling *Labia minor*, but differing widely from that species as shown above in the generic treatment.

Type.—♀; La Chorrera, Panama. May 17, 1912. (A. Busck.) [U. S. National Museum.]

The features of major importance are given in the key and generic diagnosis. In addition we would remark the following. Form moderately slender. Head with margins of cheeks almost straight, slightly converging to the sharply rounded latero-caudal angles; caudal margin straight, truncate, cut by the distinct, medio-longitudinal, linear occipital suture. Pronotum with prozona convex and lateral margins cingulate. Tegmina with transverse distal margin rounding broadly into the sutural margin. Wings with an elongate-trigonal, proximal portion at the sutural margin, smooth and pallid; apex more broadly truncate than in *Labia minor*, the distal margin straight, transverse. Ultimate dorsal abdominal segment almost entirely concealed,³² weakly produced mesad in two weakly convex portions, with caudal margin weakly bilobate. Pygidium minute. Forceps stout, length slightly over twice the greatest prox-

³¹ The male sex is unknown and will probably show other distinctive features for *Geracodes*.

³² The abdomen is distinctly retracted in the only specimen before us.

imal width; straight to the moderately incurved, chitinous, sharp apex; ventro-internal margin feebly lamellate to apex and very minutely and microscopically serrulate. Penultimate ventral abdominal segment with distal margin feebly convex.

Length of body, 4.5; of pronotum, .65; of tegmen, 1.29; of exposed portion of wing, 1.43; of forceps, .75: width of pronotum, cephalic, .5; of pronotum, caudal, .74; of tegmen, .61; of abdomen, 1.02 mm.

Head, and dorsal surface of abdomen, mesad, warm sepia. Antennae, pronotum, tegmina and wings bister, darkest on distal portion of wings. Forceps cinnamon brown. Femora clay color; underparts, tarsi and tibiae cinnamon-buff.

The type is unique.

BARYGERAX³³ new genus

This genus agrees with *Labia* and *Geracodes* in the head and pronotal contour. The presence of arolia, however, and simple male forceps, indicate much closer affinity to *Gerax* and *Eugerax*; though, in the present genus, the male has the metaperameres neither armed as in *Gerax*, or remarkable projecting, disto-ventral, lateral spines as in *Eugerax*.

The genus is monotypic. *Genotype*.—*Barygerax esau* new species.

Generic characters are given to the key. These are: the ocular and antennal characters, the general pronotal structure, the elongate tegmina and simple male forceps and metaperameres. In addition, we would note that the caudal metatarsus, though armed as in *Geracodes litus*, is considerably longer than the combined length of the second and third tarsal joints. The limbs are shorter and stouter than in the other species here considered.

This genus is anomalous; the head and pronotum indicating strong Labiine affinity, the forceps and arolia Diplatyine relationship.

Barygerax esau new species (Plate XXVI, figs. 8 and 9.)

This is a strikingly beautiful insect under the microscope, the contrasts of coloration being remarkable.

Type.—♂; Paraiso, Canal Zone, Panama. May 10, 1911. (E. A. Schwarz.) [U. S. National Museum.]

The features of major importance are discussed in the key and generic discussion. In addition, the following are noted. Form moderately robust. Head with margins of cheeks converging moderately strongly to the moderately

³³ From βαρύς = heavy, and *Gerax*.

rounded latero-caudal angles; caudal margin showing a very feeble, broad median concavity, occipital medio-longitudinal suture subobsolete. Antennal joints abruptly and strongly moniliform. Pronotum with prozona convex; lateral margins feebly diverging caudad, caudal margin weakly convex. Tegmina narrowing gradually distad; costal margin curving to the sutural margin, angle there sharply rounded. Wings with costal margin curving to the sharp angle at the straight sutural margin. Ultimate dorsal abdominal segment over twice as wide as long; surface evenly convex, except in medio-distal area where it is flattened; distal margin angularly produced, with apex blunt, above the dorsal ridge of each arm of the forceps, transverse between these projections. Pygidium not apparent. Forceps stout, straight and evenly tapering to the strongly incurved, acute apex; ventro-internal margins straight, subattingent, microscopically minutely serrulate to distal curvature; dorsal surface convex, with a brief but decided proximal medio-longitudinal ridge.³⁴ Penultimate ventral abdominal segment with distal margin feebly convex to a decided, though small, median, arcuato-angulate emargination.

Length of body, 4; of pronotum, .62; of tegmen, 1.66; of exposed portion of wing, .19; of forceps, .75; width of pronotum, cephalic, .62; of pronotum, caudal, .72; of tegmen, .59; of abdomen, 1.22 mm.

Head and ultimate dorsal abdominal segment blackish brown. Antennae clear tawny, the last segments alone slightly suffused. Cephalic limbs, median femora and tibiae, caudal femora and remaining portions of abdomen blackish chestnut brown; median tarsi and caudal tibiae paler, caudal tarsi buffy. Pronotum with prozona blackish brown, with a weak, bluish metallic luster; metazona clear light buff, suffused with brown proximo-mesad toward the prozona. Tegmina and wings blackish brown, with a decided metallic luster, green, blue or purple in different lights. Hairy covering of abdomen and forceps conspicuously golden in some lights.

The type is unique.

GERAX³⁵ new genus

The present genus shows Labiine characters only in the simple head and femora. The pronotum, male forceps and presence of arolia all indicate Diplatyine affinity. The remarkable armament of the metaperameres of the male is distinctive.

The genus is related to *Eugerax*, but differs widely in the greatly developed eyes, with facets larger and each distinctly more convex, short cheeks, smooth pronotum and tegmina, wide differences in the male genitalic armament and much shorter caudal metatarsus and decidedly longer second caudal tarsal joint.

³⁴ This ridge may be very similar to that found in *Gerax* and *Eugerax*. In the single specimen before us the proximo-dorsal portion of the forceps is hidden by the ultimate dorsal abdominal segment.

³⁵ From γέραχ=a prize.

The genus is monotypic. *Genotype*.—*Gerax phantasma* new species.

Generic features are given in the key. These are: the ocular antennal characters, the general pronotal structure, character of hairy covering, simple male forceps and highly specialized male metaperameres. In addition, we would observe that the caudal metatarsus is supplied ventrad with hairs, but no chaetiform spines, agreeing in this character with *Eugerax*, it is distinctly longer than the combined length of the second and third tarsal joints; the second tarsal joint is exceptionally elongate, fully twice as long as its greatest width and over half as long as the short third joint. As in *Eugerax*, the limbs are elongate and slender.

The genus shows an unmistakably Diplatyine general facies.

Gerax phantasma new species (Plate XXVI, figs. 10 and 11.)

This minute insect is pale and immaculate; its slender form, large eyes, minute pronotum, ample tegmina and minute, simple forceps, give it a distinctive appearance.

Type.—♂; Trinidad River, Panama. March 17, 1912. (A. Busck.) [U. S. National Museum.]

The most important characters are given in the key and generic diagnosis. In addition, the following features are noted. Form very slender. Head with brief lateral margins of cheeks rounding broadly into the transverse caudal margin, this entire margin with a fringe of well spaced bristles; medio-longitudinal occipital suture distinct only toward caudal margin of head. Antennal joints not moniliform; first joint about equal to combined length of second and third joints, succeeding joints increasing in length distad.³⁶ Pronotum very small, smooth except for a single bristle at each latero-cephalic angle; prozona convex; metazona decidedly ascending laterad, feebly ascending caudad; lateral margins feebly diverging caudad, caudal margin strongly convex. Tegmina with surface smooth; evenly convex from sutural to costal margin beyond shoulders, narrowing only in distal third, where the costal margin is broadly convex to the rather sharply rounded angle at the sutural margin. Wings supplied with a few minute, scattered hairs; costal margin weakly convex to very brief, transverse, distal truncation. Ultimate dorsal abdominal segment much as in *Barygerax esau*, but with distal margin only feebly produced in a minute convexity above the dorsal ridge of each arm of the forceps. Pygidium minute, delicate, declivent, with straight lateral margins weakly converging to the broad, transverse, disto-ventral margin. Forceps moderately stout, more slender than in *B. esau*, straight and evenly tapering to the immediate, chitinous, aciculate, incurved apex; ventro-internal margins

³⁶ Nine and eleven joints remain, the antenna with the greatest number having apparently lost only one or two distal joints.

weakly lamellate, straight, subattingent, serrulate to the immediate apex and thickly supplied with erect, small, subequal hairs; dorsal surface convex, with a brief, but very decided, proximal ridge, which extends from near the internal margin to just beyond the median line of the shaft and is strongly convex in longitudinal contour; ventral surface deplanate. Metaperameres projecting, soft, but with two very sharp, chitinous, medio-distal, fang-like thorns, directed ventrad and curving cephalad, proximad of these the integument is subchitinous and produced in a convex ridge, which fits into the median emargination of the penultimate ventral abdominal segment.³⁷ This segment has its caudal margin transverse, with a small but decided angulate emargination mesad.

Length of body, 4.01; of pronotum, .57; of tegmen, 1.5; of exposed portion of wing, .35; of forceps, .57: width of pronotum, cephalic, .48; of pronotum, caudal, .54; of tegmen, .51; of abdomen, .68 mm.

Head ochraceous-tawny, eyes black. Antennae, pronotum and limbs ochraceous-buff. Tegmina and wings ochraceous-buff, the former washed with ochraceous-tawny proximad, the latter heavily washed with prout's brown along the costal margin. Abdomen ochraceous-tawny, shading to cinnamon brown mesad, with lateral portions of fourth and fifth dorsal segments washed with prout's brown. Forceps ochraceous-tawny. Hairy covering golden.

The type is unique.

EUGERAX³⁸ new genus

This genus agrees with *Gerax*, except in the features given in the comparison under the generic treatment of *Gerax*.

The genus is monotypic. *Genotype*.—*Eugerax poecilum* new species.

The generic features given in the key are: small eyes, general character of pronotum, character of hairy covering, simple and similar forceps in both sexes, and remarkable male genitalic armament. In addition, we would remark that the caudal metatarsus is supplied ventrad with hairs, but no chaetiform spines; it is remarkably elongate and slender, twice as long as the combined length of the minute second and short third joints. The limbs are elongate and slender.

The general facies is strongly Diplatyine; the head is, however, evenly convex in both sexes, with eyes small, and the femora are simple, not keeled. An immature example before us has the

³⁷ In this specimen the metaperameres are evidently extruded; it is not probable that the fangs, here described, can be drawn completely in and thus concealed.

³⁸ From *εὖ* = beautiful, and *Gerax*.

forceps as in the adult, not represented by segmented cerci as found in the early stages of the *Diplatyinae*.

Eugerax poecillum new species (Plate XXVI, figs. 12, 13, 14 and 15.)

The present beautiful species is the smallest of the known forms of the *Dermaptera*. Some similarity in general form and antennal coloration is shown to *Prolabia formica* (Burr), the male of that species showing, however, very wide differentiation in having the widely separated forceps bowed and unlike those of the opposite sex.

Type.—♂; Paraiso, Canal Zone, Panama. January 19, 1911. E. A. Schwarz.) [U. S. National Museum.]

The characters of greatest importance are given in the key and generic diagnosis. In addition, we would note the following. Form moderately slender. Head with surface thickly covered with microscopic hairs; lateral margins of cheeks distinctly convergent to the broadly rounded latero-caudal angles, caudal margin transverse; occipital sutures almost obsolete. Antennal joints not moniliform, (normally eleven to thirteen in series³⁹); first joint equal to combined length of second and third joints; fourth slightly shorter than third; succeeding joints increasing, then decreasing, in length, longest about two and one-half times as long as wide. Pronotum very small, covered with microscopic hairs and with a few bristles along the lateral margins, caudal margin strongly convex; prozona convex; metazona strongly ascending laterad and caudad. Tegmina with surface thickly covered with minute hairs; evenly convex from sutural to costal margin beyond shoulders, broadest near apex where costal margin rounds broadly into the straight, transverse distal margin, which forms a sharply rounded right-angle with the sutural margin. Wings similarly hairy, with costal margin weakly convex to the moderate, transverse distal truncation. Ultimate dorsal abdominal segment much as in *Barygerax esau*. Pygidium not apparent. Forceps much as in *Gerax phantasma*, but slightly shorter, with shaft moderately upcurved. (Metaperameres projecting, soft, unarmed.) Beneath each arm of the forceps a nearly straight, elongate, chitinous, aciculate process projects caudad. Penultimate ventral abdominal segment with distal margin moderately convex laterad, thus forming a shallowly angulate emargination mesad.

Allotype.—♀; same data as type, but taken February 6, 1911. [U. S. National Museum.]

This sex agrees with the male to an exceptional degree. The only noticeable differences are that the size is very slightly larger; the form is slightly more robust; the ventro-internal margins of the forceps are smooth; the aciculate projections beneath the forceps are absent, and the number of ventral abdominal segments (not including the penultimate segment), as is found throughout the *Dermaptera*, are five in the female, seven in the male.

³⁹ See page 322, footnote 29.

	<i>Measurements (in millimeters)</i>				
	Length of body	Length of pronotum	Width of pronotum	Length of tegmen	Length of forceps
♂					
Paraiso, <i>type</i>	3.13	.42	.46	.92	.41
Paraiso, <i>paratypes</i> (3)	2.5-3.13	.4-.43	.44-.48	.9-.95	.41-.45
Bohio, <i>paratype</i>	2.58	.41	.44	.82	.41
♀					
Paraiso, <i>allotype</i>	2.92	.46	.48	.94	.46
Paraiso, <i>paratypes</i> (4)	2.79-3.06	.42-.48	.49-.5	.86-.94	.44-.48
Bohio, <i>paratype</i>	2.75	.44	.47	.85	.44

Type: exposed length of wing, .4; width of tegmen, .52; width of abdomen, .68 mm. *Allotype*: width of abdomen, .95 mm.

To the naked eye, the insects appear ochraceous-buff, suffused with fuscous black on the tegmina and medio-distal portion of the abdomen, before which a brief whitish area is apparent. Under the microscope the coloration is seen to be: (Intensive.) Head russet. Antennae ochraceous-tawny, with the last two or three segments blackish brown. Pronotum ochraceous-tawny, deepening meso-caudad to blackish brown; narrowly margined, except cephalad, with light buff, this broadest meso-caudad. Tegmina mummy brown, shading to ochraceous-tawny cephalad and margined with light buff at the distal curvature of the costal margin. Exposed portion of wings blackish brown. Abdomen with second dorsal segment blackish brown laterad, broadly ochraceous-buff between, with a faint tinge of cinnamon brown mesad; third dorsal segment ochraceous-buff, with latero-dorsal tufts of whitish hairs and a weak suffusion of cinnamon brown mesad; other segments blackish brown. Forceps russet. Cephalic limbs and median and caudal femora and tarsi ochraceous-tawny; median tibiae mummy brown, caudal tibiae blackish brown. (Recessive.) Dark areas less extensive, abdomen alone different: fourth dorsal segment with large lateral areas of blackish brown, elsewhere weak ochraceous-tawny; succeeding segments weak ochraceous-tawny. The recessive condition is indicated, but only weakly, in two males; this condition, however, is shown in all the females before us. The single immature example is very strongly intensive in coloration.

Specimens Examined: 14; 6 males, 7 females and 1 immature individual.

Bohio, Canal Zone, Panama, II, 7 and IV, 7, 1911, (Schwarz; Jennings), 1 ♂, 1 ♀, *paratypes*.

Paraiso, C. Z., Pan., I, 1 to IV, 10, 1911, (Schwarz; Busck; Jennings), 4 ♂, 6 ♀, *type, allotype, paratypes*, 1 juv.

Panama, C. Z., Pan., 1911, (A. H. Jennings), 1 ♂, *paratype*.

SPARATTINAE

Sparatta pulchra Borelli

1906. *Sparatta pulchra* Borelli, Boll. Mus. Zool. Anat. comp. Univ. Torino, xxi, no. 531, p. 11. [Escazu, Costa Rica.]

Alhajuelo, Panama, IV, 7, 1911, (A. Busck), 1 ♂, 1 ♀.

FORFICULIDAE

FORFICULINAE

Doru lineare (Eschscholtz)

1822. *Forficula linearis* Eschscholtz, Entomogr., p. 81. [Santa Catharina, Brazil.]

Tabernilla, Canal Zone, Panama, VI, 14, 1907, (A. Busck),
1 ♀.

Cabima, Pan., V, 28 and 30, 1911, (Busck), 1 ♂, 1 ♀.

Panama, Pan., VI, 1915, (Harrower), 1 ♂, 1 ♀.

These specimens are small for the species, the males with forceps rather slender and with the usual meso-distal tooth very small.

NEOLOBOPHORINAE

Neolobophora ruficeps (Burmeister)

1838. *F[orficula] ruficeps* Burmeister, Handb. Ent., ii, abth., ii, i, p. 755. [Mexico.]

Culebra, Canal Zone, Panama, 1910, (H. H. Rousseau), 1 ♂,
[U. S. N. M.].

Panama, Pan., VI, 1915, (Harrower), 1 ♀.

These records extend the known distribution of the species southward from Costa Rica.

ANCISTROGASTRINAE

Praos championi (Bormans)

1893. *Ancistrogaster championi* Bormans, Biol. Cent.-Amer., Orth., i, p. 10, pl. II, fig. 13. [Chiriqui Volcano, Panama, at 2500 to 4000 meters.]

Boquete, Panama, III, 19, 1914, (J. Zetek), 2 ♂.

These specimens agree fully with the type, except in having the exposed portion of the wings immaculate and but a single disto-median internal tooth on each arm of the forceps. These features are attributable entirely to individual variation. Length of body, 9 and 11.6; of forceps 7.1 and 7.3 mm.

After comparison of this species, chosen as genotype of *Vlax* by Burr, with *perditus*, chosen as genotype of *Praos* by the same author, we are astonished to find that his generic description of *Vlax* is evidently drawn from other species there included and that the selected genotypes of these two genera are clearly con-

generic. Hence *Vlax* falls for the older *Praos*. The following comparison of *perditus* and *championi* shows their affinity, and the characters here given may be considered diagnostic for the genus *Praos*.

Tegmina fully developed (*championi*) or abbreviated (*perditus*), with costal margin keeled throughout. Wings fully developed (*championi*) or not showing (*perditus*).⁴⁰ Abdomen broadening to just beyond median point, with lateral outline convex and dorsal surface subdeplanate, feebly convex; third to sixth segments with dorso-lateral angles acute-angulate produced, with oblique keels, which ascend caudad, so that the apices of these angles are above the adjacent dorsal abdominal surface, these projections more decided on fourth and fifth segments; stink glands of third segment weak, of fourth segment well developed; seventh and eighth segments feebly produced dorso-laterad; ninth with only brief caudal margin showing. Ultimate dorsal abdominal segment with weak convexities at bases of forceps and brief ridges laterad, which diverge caudad (these stronger in *championi*); latero-ventral margin of this segment terminating in a minute, slender, conical projection at the lateral projection of the penultimate ventral abdominal segment. (Though very similar in general character, the forceps of *perditus* do not have a proximo-internal tooth, such a tooth is strongly developed in *championi*.) Penultimate ventral abdominal segment produced latero-caudad in slightly divergent projections. Caudal metatarsus longer than third tarsal joint.

OPISTHOCOSMIINAE

Dinex americanus (Bormans)

1893. *Opisthocosmia americana* Bormans, Biol. Cent.-Amer., Orth., i, p. 8, pl. I, figs. 22 and 23. [Teapa, Tabasco, Mexico; Upper Amazon [South America].]

Alhajuelo, Panama, IV, 17, 1911, (Busck), 1 ♀.

Bohio, Canal Zone, Pan., II, 7, 1911, (Schwarz), 1 ♂.

Frijoles, C. Z., Pan., (A. H. Jennings; from flowers of "Lingua de Vaca"), 1 ♂.

Paraiso, C. Z., Pan., I, 26, 1911, (Schwarz), 1 ♀.

This species is discussed under *S. anomalia*. In specimens of recessive coloration, the proximal antennal joints are somewhat darkened. In the male from Bohio, the forceps are not as highly specialized as is normal; the dextral shaft is simple, without the characteristic heavy tooth.

⁴⁰ Different degrees of development of the organs of flight are clearly of no generic value in the present subfamily.

***Sarcinatrix anomalia* Rehn**

1903. *Opisthocosmia (Sarcinatrix) anomalia* Rehn, Proc. Acad. Nat. Sci. Phila., 1903, p. 308. [Turrialba and San Carlos, Costa Rica.]

Trinidad River, Pan., V, 2, 1911, (Busek), 1 ♂.

Alhajuelo, Pan., IV, 19, 1911, (Busek), 1 ♀.

It is hard to understand Burr's removal of the present genus and species to the Ancistrogastriinae. Careful comparison with *americanus*, genotype of *Dinex*, shows without question the close relationship of these genera. That *Dinex* is a characteristic Opisthocosmiine genus is agreed by all. The entire structure of *Sarcinatrix* shows close agreement with *Dinex*, excepting the faintly suggested tegminal keel and the very remarkable character of the male forceps and penultimate ventral abdominal segment. This tegminal condition and the production of the penultimate ventral male abdominal segment are given by Burr as showing Ancistrogastriine affinity. The development of a tegminal keel is found in other genera of the Opisthocosmiinae, so this condition can not be used for assignment to one of the two subfamilies under consideration. The specialization of the penultimate ventral male abdominal segment is anomalous, no approach to such development being found in any known species of the Dermaptera. That it would seem to be a high specialization of the not thickened projections of this segment characteristic of some, not all, of the species of the Ancistrogastriinae, as argued by Burr, would appear to be true for Burr's figure,⁴¹ but this figure is either incorrectly drawn, or is taken from an example of a different species, the projections of the segment in *anomalia* being not large rounded lobes, but large, heavy, recurved, spiniform processes, which curve outward and upward, flanking the bases of the cerci, as described by Rehn.

The Ancistrogastriinae and Opisthocosmiinae, though at present poorly characterized, clearly represent valid divisions.

The head and pronotum in *Dinex americanus* and *Sarcinatrix anomalia* are very similar; the head has the meso-caudal depression, and transverse, arcuate sulcus between the caudal margins of the eyes, more decided in *anomalia*; the strikingly colored and annulate antennae are similar in these species; the pronotum is

⁴¹ Proc. U. S. Nat. Mus., xxxviii, p. 431, fig. 5. (1911).

similar in outline, contour and almost in color, its caudal margin is convexo-truncate. The tegminal and wing coloration is very different. The caudal tarsal joints are slightly shorter in *anomalia*, but in both species of the same proportionate length, the metatarsus about equalling the combined length of the second and third joints.

The specimens here recorded agree fully with the typical series, except that the coloration is more intensive. The limbs and antennae, to tip of fifth joint, are obscure sudan brown; the tip of the sixth and tenth antennal joints and all of the seventh, eighth, eleventh and twelfth are black; the ninth and proximal portion of the tenth joints are white. The head and pronotum are shining blackish brown, the latter margined laterad and caudad with buffy.⁴² The tegmina and wings are shining zinc orange, the former margined on all sides with a narrow suffusion of blackish brown.

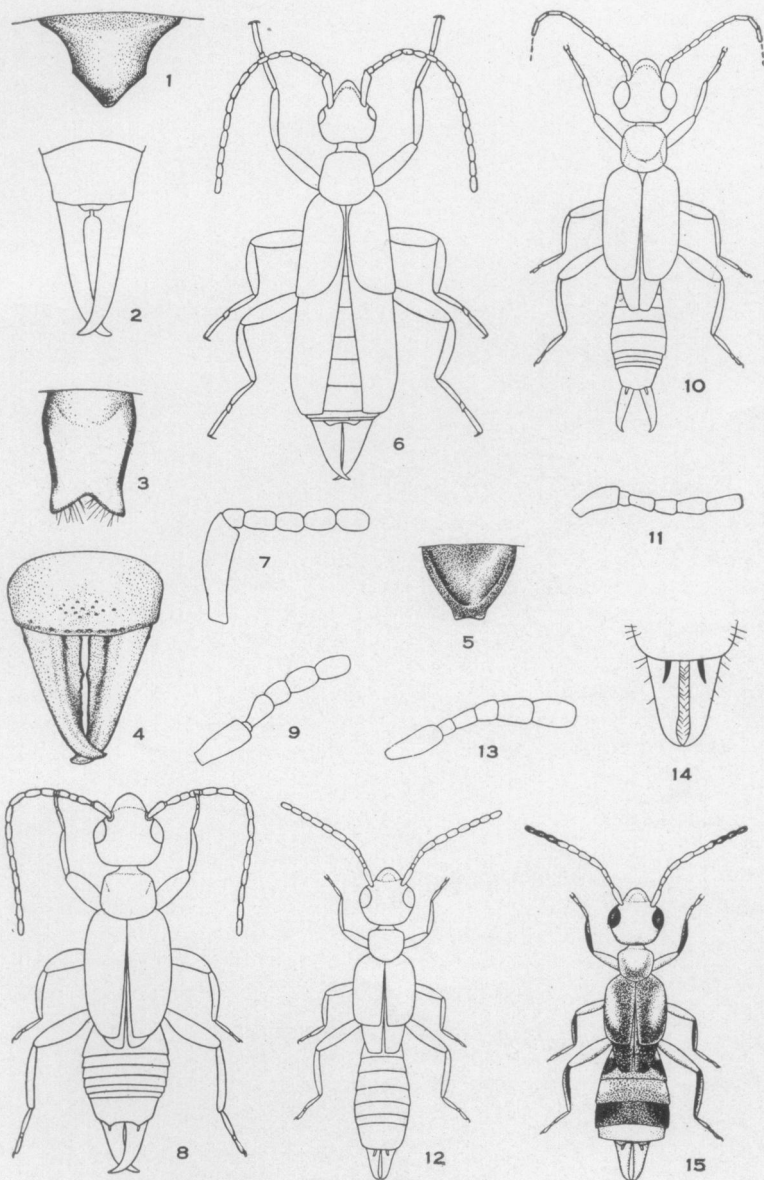
⁴² This buffy marginal marking is only found laterad in *Dinex americanus*.

EXPLANATION OF PLATE

Plate XXVI

The pygidial and antennal figures are all greatly enlarged.

- Fig. 1.—*Prosparatta humilis* new species. Dorsal view of male pygidium. *Type*.
- Fig. 2.—*Prosparatta humilis* new species. Dorsal outline of apex of female abdomen and forceps. *Allotype*. ($\times 7$)
- Fig. 3.—*Labia micans* new species. Dorsal view of male pygidium. *Type*.
- Fig. 4.—*Labia micans* new species. Dorsal view of apex of female abdomen and forceps. *Allotype*. ($\times 23$)
- Fig. 5.—*Microvostox bilineatus* (Scudder). Dorsal view of male pygidium. Ancon, Panama.
- Fig. 6.—*Geracodes litus* new species. Dorsal outline of female. *Type*. ($\times 10$)
- Fig. 7.—*Geracodes litus* new species. Outline of proximal antennal joints. *Type*.
- Fig. 8.—*Barygerax esau* new species. Dorsal outline of male. *Type*. ($\times 11$)
- Fig. 9.—*Barygerax esau* new species. Outline of proximal antennal joints. *Type*.
- Fig. 10.—*Gerax phantasma* new species. Dorsal outline of male. *Type*. ($\times 11$)
- Fig. 11.—*Gerax phantasma* new species. Outline of proximal antennal joints. *Type*.
- Fig. 12.—*Eugerax poecilum* new species. Dorsal outline of male. *Type*. ($\times 12$)
- Fig. 13.—*Eugerax poecilum* new species. Outline of proximal antennal joints. *Type*.
- Fig. 14.—*Eugerax poecilum* new species. Ventral outline of distal portion of male abdomen and forceps, showing projecting spines. *Type*. ($\times 32$)
- Fig. 15.—*Eugerax poecilum* new species. Dorsal view of female. *Allotype*. ($\times 12$)



HEBARD—PANAMA DERMAPTERA